Missouri Department of Natural Resources

PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: September 19, 2006

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, ATTN: NPDES Permits and Engineering Section / Permit Comments. **Please include the permit number in all comment letters.**

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by October 19, 2006 or received in our office by 5:00 p.m. on October 23, 2006. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at DNR's website, http://www.dnr.mo.gov/env/wpp/index.html, or at the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

Public Notice Date: September 19, 2006
Permit Number: MO-0049531
Kansas City Regional Office

FACILITY NAME AND ADDRESS	NAME AND ADDRESS OF OWNER
Birmingham Wastewater Treatment Facility 10801 NE 28th Street, Kansas City, MO 64161	City of Kansas City 414 East 12th Street, Kansas City, MO 64106
RECEIVING STREAM & LEGAL DESCRIPTION	**TYPE OF DISCHARGE**
Receiving Stream: Missouri River (P) Legal Description: NE ¼, SW ¼, Sec. 13, T50N, R32W, Clay County Latitude/Longitude: +3838401/-09422100	

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0049531
Owner:	City of Kansas City
Address:	414 East 12th Street, Kansas City, MO 64106
Continuing Authority:	KCMO Water Services Department
Address:	4800 East 63rd Street, Kansas City, MO 64130
Facility Name:	Birmingham Wastewater Treatment Facility
Facility Address:	10801 NE 28th Street, Kansas City, MO 64161
Legal Description:	NE ¼, SW ¼, Sec. 13, T50N, R32W, Clay County
Latitude/Longitude:	+3838401/-09422100
Receiving Stream:	Missouri River (P)
First Classified Stream and ID:	Missouri River (P) (0356) 303(d) List
USGS Basin & Sub-watershed No.:	(10300101 – 040002)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 – POTW – SIC #4952
Two parallel complete mix activated sludge trains composed of aerated grit chamber, primary settling basin, aeration basin, final settling basin and effluent pump station/sludge is pumped to the Blue River facility (MO-0024911) for processing
Design population equivalent is 100,000.
Design flow is 20 million gallons per day.
Actual flow is 12.4 million gallons per day.
Design sludge production (including that received from other facilities) is 21,000 dry tons/year.
Continued next page
This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Expiration Date

Edward Galbraith, Director of Staff, Clean Water Commission

FACILITY DESCRIPTION (continued)

Outfall #006 – Ground water monitoring wells:
Upgradient(background)wells # 1, 18, 32, and 33.
Internal wells at land application sites #2, 20, 22, 24, and 31.
Internal wells adjacent to sludge storage lagoons # 16, 17, 28, 29, and 30.
Downgradient wells #3, 4, 26, and 27.

ADDITIONAL FACILITY DESCRIPTION FOR OUTFALL #001

Sludges from Birmingham, Westside, and Blue River Sewage Treatment Plants are anaerobically digested at the Blue River Sewage Treatment Plant. Sludge from other facilities may also be land applied (Special Conditions). The sludge is then pumped to sludge holding basins at Birmingham for land application. The total design sludge quantity to be land applied at Birmingham is approximately 21,000 dry tons/year.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until four (4) years and 364 days from the date of issuance of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Fecal Coliform	#/100mls	*		*	once/week	grab

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective one (1) day before the date of expiration of this permit and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Fecal Coliform	#/100mls	1000		400	once/week	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE _____.

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/weekday**	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/weekday**	24 hr. composite
Total Suspended Solids	mg/L		45	30	once/weekday**	24 hr. composite
pH – Units	SU	***		***	once/weekday**	grab
Ammonia as N	mg/L	*		*	once/week	grab
Temperature	°C	*		*	once/week	grab
Oil & Grease	mg/L	15		10	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	once/year	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE _____.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II, & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** Once per weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

Note 1 - Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

Note 2 - If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

C. INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 85% or more. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Influent			
Biochemical Oxygen Demand$_5$	mg/L	once/month	grab
Total Suspended Solids	mg/L	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE _____.

MO 780-0010 (8/91)

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

4. Report as no-discharge when a discharge does not occur during the report period.

D. SPECIAL CONDITIONS (continued)

5. Water Quality Standards
   (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

6. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
   (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
   (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

7. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.

8. The permittee shall submit a report semi-annually in April and October with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the City's collection system.

9. Hydraulic Capacity Report
   (a) The permittee shall submit to the Department’s Kansas City Regional Office (KCRO) for review a Hydraulic Capacity Report (the Report), that will evaluate dry weather flows in millions of gallons per day (MGD) for this wastewater treatment facility. The permittee further agrees to include, at a minimum, the following information in the Report:
      (1) Facility name;
      (2) Missouri State Operating Permit number;
      (3) Reporting period;
      (4) Design population equivalent;
      (5) Average daily design flow in MGD;
      (6) Maximum peak flow in MGD recorded during the last five years;
      (7) Actual daily flow in MGD averaged annually for the last five years and for each year individually;
      (8) Influent BOD mg/L, TSS mg/L, and Ammonia mg/L averaged annually for the last five years and for each year individually;
      (9) Effluent BOD mg/L, TSS mg/L, and Ammonia mg/L averaged annually for the last five years and for each year individually;
      (10) Removal efficiency for BOD, TSS, and Ammonia averaged annually for the last five years and for each year individually;
      (11) Annual rainfall amounts shall be provided for the last five years; and
      (12) Summary of all violations of MSOP effluent limitations for the reporting period.

D. SPECIAL CONDITIONS (continued)

9. Hydraulic Capacity Report (continued)

(b) The permittee shall as part of the Report, review the above data and make an assessment of whether flows or organic loads are approaching plant capacity. The permittee will assess whether a plant is reaching capacity by reviewing the following data:

(1) Wastewater flow trends B the annual average daily flows for the preceding five years will be evaluated to determine whether flows are increasing sufficiently to warrant initiation of a facility planning study;

(2) Percentage of design flow B the annual average daily flow for the preceding year will be compared to the rated design flow. If it is greater than 80 percent, the permittee will assess whether to initiate a facility planning study. If the permittee does not initiate a facility planning study, the permittee will include a written explanation to the Department in the annual Report.

(3) Anticipated growth B the permittee's Planning and Development Department shall be consulted for information, data, and opinions concerning growth in the applicable watersheds. If it appears that significant growth is anticipated in contributing watersheds such that flow to the WWTF may reach 80 percent of design capacity in the next five years, the permittee will assess whether to initiate a facility planning study. If the permittee does not initiate a facility planning study, the permittee shall include a written explanation to the Department in the annual Report. This criteria will be employed only as to those WWTF that do not have fully-developed or nearly fully-developed watersheds.

(c) The permittee shall submit the Report for the facility referenced herein annually by March 31st. This Report will contain data from the prior calendar year.

10. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
001	10	once/year	24 hr. composite	August

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.

(b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.

(c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.

(d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.

(e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.

(f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.

(h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.

D. SPECIAL CONDITIONS (continued)

(i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
(j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
(k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
(l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
(m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.

(2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(3) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days and biweekly thereafter, until one of the following conditions are met:
(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.

(5) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(10) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

(1) To pass a multiple-dilution test:
(a) For facilities with A computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC), OF 30% OR LESS THE AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR**,
(b) For facilities with an AEC greater than 30% the LC50 concentration must be greater than 100%; **AND**,
(c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

D. SPECIAL CONDITIONS (continued)

(c) Test Conditions
(1) Test Type: Acute Static non-renewal
(2) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
(3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
(4) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
(5) Multiple-dilution tests will be run with:
(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.
(6) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
(7) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

E. SCHEDULE OF COMPLIANCE

1. The final daily maximum and monthly average Fecal Coliform limits of 400/100ml and1000/100ml , respectively, shall become effective one day prior to the expiration date of the permit or December 31, 2013, whichever comes first unless items b or c below are approved by the Department. The Effluent Regulation, 10 CSR 20-7.015(9)(H), allows the permittee up to five years from the issuance date of this permit to:

a. Install disinfection facilities, or;
b. Present an evaluation to show that disinfection is not required to protect one or both recreational uses, or;
c. Present a Use Attainability Analysis (UAA) that demonstrates one or both designated recreational uses are not attainable in the classified waters receiving the effluent.

2. If chlorination is the chosen method of disinfection, a Total Residual Chlorine limit may be added to the permit.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Date of Fact Sheet: August 18, 2006

Date of Public Notice: September 15, 2006

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FACT SHEET

This Fact Sheet explains the applicable regulations, rationale for development of this permit and the public participation process.

NPDES PERMIT NUMBER: MO-0049531

FACILITY NAME: Birmingham Wastewater Treatment Facility

OWNER NAME: City of Kansas City

LOCATION: NE ¼, SW ¼, Sec. 13, T50N, R32W, Clay County

RECEIVING STREAM: Missouri River

FACILITY DESCRIPTION AND RATIONALE

The wastewater treatment facility is composed of two parallel complete mix activated sludge trains composed of aerated grit chamber, primary settling basin, aeration basin, final settling basin and effluent pump station. Sludge is pumped to the Blue River facility (MO-0024911) for processing

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Permits in Missouri are issued by the Director of the Department of Natural Resources under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended).

10 CSR 20-7.031 Missouri Water Quality Standards, Missouri Department of Natural Resources (the Department) "defines the Clean Water Commission water quality objectives in terms of water uses to be maintained and the criteria to protect those uses." The receiving stream's beneficial water uses to be maintained are irrigation, livestock and wildlife watering, protection of aquatic life, whole body contact recreation, secondary contact recreation, drinking water supply and industrial use.

To protect these beneficial uses and the water quality of the receiving stream, effluent limitations have been established under federal and state laws. See the Water Quality Review Sheet (attached) portion of this fact sheet for details on effluent limit derivation.

This permit will be issued for a period of five years.

Missouri Department of Natural Resources
Water Protection Program
NPDES Permits and Engineering Section

Water Quality Review Sheet

Determination of Effluent Limits and Monitoring Requirements

Facility Information

FACILITY NAME: KC, Birmingham WWTF NPDES #: MO-0049531

FACILITY TYPE/DESCRIPTION: 20 MGD activated sludge

EDU*: PMOK 8- DIGIT HUC: 10300101 COUNTY: Clay

* - Ecological Drainage Unit

LEGAL DESCRIPTION: NE ¼, SW ¼, Sec. 13, T50N, R32W LATITUDE/LONGITUDE: +3908291/-09426517

WATER QUALITY HISTORY: Chronic violations of BOD limit, occasional violations of TSS limit. Noncompliance documented in inspections.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	APPROXIMATE DISTANCE TO CLASSIFIED SEGMENT (MI)
001	31	Secondary	Missouri River	0.0
006	0	Monitoring Wells	----------	---

Receiving Waterbody Information

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES**
			1Q10	7Q10	30Q10	
Missouri River 303(d)	P	0356	8,211	10,530	16,271	IRR, LWW, AQL, WBC, SCR, DWS, IND

** Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery (CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND)

COMMENTS: The Missouri River is on the 303(d) list of impaired waters for Chlordane and PCBs. This facility is not believed to be a significant source of these parameters, but monitoring has been included in the permit to verify this assumption.

Mixing Considerations

Mixing Zone (MZ): one quarter of stream width; cross sectional area or volume of flow; length of one quarter mile. 10 CSR 20-7.031(4)(A)4.B.(III)(a)

Zone of Initial Dilution (ZID): one tenth of the mixing zone width, cross-sectional area or volume of flow and no more than ten times the effluent design flow volume. 10 CSR 20-7.031(4)(A)4.B.(III)(b)

	Flow (cfs)	MZ (cfs)	ZID (cfs)
7Q10	10,530	2,633	263
1Q10	8,211	2,053	205
30Q10	16,271	4,068	N.A.

$$\text{A.E.C. \%} = \left(\frac{\text{Design Flow + Zone of Initial Dilution}}{\text{Design Flow}} \right)^{-1} X100$$

Permit Limits and Information

WASTELOAD ALLOCATION STUDY CONDUCTED (Y OR N): N

USE ATTAINABILITY ANALYSIS CONDUCTED (Y OR N): N

WHOLE BODY CONTACT USE RETAINED (Y OR N): Y

OUTFALL #001

WET TEST (Y OR N): Y FREQUENCY: ONCE/YEAR AEC: 10 % METHOD: MULTIPLE

PARAMETER	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MONITORING FREQUENCY
FLOW	MONITOR		MONITOR	once/weekday
BOD_5 (MG/L)*		45	30	once/weekday
TSS (MG/L)*		45	30	once/weekday
PH (S.U.)	6-9		6-9	once/weekday
AMMONIA AS N (MG/L)	MONITOR		MONITOR	once/weekday
OIL & GREASE (MG/L)	15		10	once/month
FECAL COLIFORM (NOTE 1)	1000		400	once/weekday
TOTAL RESIDUAL CHLORINE (MG/L)	MONITOR		MONITOR	once/weekday
ARSENIC, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
CADMIUM, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
CHROMIUM III, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
CHROMIUM VI, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
COPPER, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
CYANIDE, AMENABLE TO CHLORINATION (MG/L)	MONITOR			once/quarter
LEAD, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
MERCURY, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
NICKEL, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
SILVER, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
ZINC, TOTAL RECOVERABLE (MG/L)	MONITOR			once/quarter
CHLORDANE(MG/L)	MONITOR			once/year
TOTAL TOXIC ORGANICS (MG/L)	MONITOR			once/year

NOTE 1 – COLONIES/100 ML

* - This facility is required to meet a removal efficiency of 85% or more for BOD_5 and TSS. Influent BOD_5 and TSS data should be reported to ensure removal efficiency requirements are met.

OUTFALL #006

WET TEST (Y OR N): N FREQUENCY: _____ AEC: _____ METHOD: _____

Wells 3, 4, 26 & 27

PARAMETER	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MONITORING FREQUENCY
WATER LEVEL BELOW GROUND SURFACE	MONITOR			once/month
TOTAL SUSPENDED SOLIDS (MG/L)	MONITOR			once/month
TOTAL DISSOLVED SOLIDS (MG/L)	MONITOR			once/month
NITRATE – N (MG/L)	MONITOR			once/month
AMMONIA – N (MG/L)	MONITOR			once/month
TOTAL NITROGEN – N (MG/L)	10			once/month
FECAL COLIFORM (NOTE 1)	MONITOR			once/month
PH - UNITS (S.U.)	6-9			once/month
CHLORIDES (MG/L)	250			once/month
ALUMINUM, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
ALUMINUM, DISSOLVED (MG/L)	MONITOR			once/year
ARSENIC, TOTAL RECOVERABLE (MG/L)	0.050			once/year
CADMIUM, TOTAL RECOVERABLE (MG/L)	0.005			once/year
COPPER, TOTAL RECOVERABLE (MG/L)	1.3			once/year
CHROMIUM III, TOTAL RECOVERABLE (MG/L)	0.1			once/year
CHROMIUM VI, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
LEAD, TOTAL RECOVERABLE (MG/L)	0.015			once/year
MERCURY, TOTAL RECOVERABLE (MG/L)	0.002			once/year
NICKEL, TOTAL RECOVERABLE (MG/L)	0.1			once/year
SELENIUM, TOTAL RECOVERABLE (MG/L)	0.05			once/year
ZINC, TOTAL RECOVERABLE (MG/L)	5.0			once/year
SULFATES (MG/L)	250			once/year

Wells 1, 2, 16-18, 20, 22, 24, 28-33

PARAMETER	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MONITORING FREQUENCY
WATER LEVEL BELOW GROUND SURFACE	MONITOR			once/month
TOTAL SUSPENDED SOLIDS (MG/L)	MONITOR			once/month
TOTAL DISSOLVED SOLIDS (MG/L)	MONITOR			once/month
NITRATE – N (MG/L)	MONITOR			once/month
AMMONIA – N (MG/L)	MONITOR			once/month
TOTAL NITROGEN – N (MG/L)	MONITOR			once/month
FECAL COLIFORM (NOTE 1)	MONITOR			once/month
PH - UNITS (S.U.)	MONITOR			once/month
CHLORIDES (MG/L)	MONITOR			once/month
ALUMINUM, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
ALUMINUM, DISSOLVED (MG/L)	MONITOR			once/year
ARSENIC, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
CADMIUM, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
COPPER, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
CHROMIUM III, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
CHROMIUM VI, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
LEAD, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
MERCURY, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
NICKEL, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
SELENIUM, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
ZINC, TOTAL RECOVERABLE (MG/L)	MONITOR			once/year
SULFATES (MG/L)	MONITOR			once/year

NOTE 1 – COLONIES/100 ML

Receiving Water Monitoring Requirements

No receiving water monitoring requirements recommended at this time.

Derivation and Discussion of Limits

Wasteload allocations were calculated using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Outfall #001 – *Main Facility Outfall*

- **Biochemical Oxygen Demand (BOD_5).** 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(2)(B)1.].

- **Total Suspended Solids (TSS).** 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(2)(B)1.].

- **pH.** pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015 (2)(B)2.].

- **Total Ammonia Nitrogen** Monitoring only to verify that this facility does not pose a reasonable potential for exceedance of Water Quality Standards.

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Fecal Coliform** facility is within 2 miles to a Whole Body Contact receiving stream, therefore wastewater must not contain more than a monthly geometric mean of 400 colonies per 100 milliliters and a daily maximum of 1000 colonies per 100 milliliters. [10 CSR 20-7.015(2)(B)4]

- **Total Residual Chlorine** If Chlorination is the method chosen for disinfection, monitoring to verify this discharge does not pose a reasonable potential for exceedance of Water Quality Standards.

- **Cyanide and Metals** monitoring for these parameters recommended based on Kansas City's pretreatment program local limits.

- **Chlordane** monitoring only

- **Total Toxic Organics** monitoring only.

Outfall 006

Effluent limits in the downgradient wells, 3, 4, 26 & 27, are set at drinking water supply Water Quality Standards.

The pollutant concentrations in the downgradient wells shall not exceed the higher of the following:

a) The listed permit limit(s)
b) A concentration that is not statistically higher than the concentration in the upgradient wells during the same monitoring period for the 80% confidence level using the Students T test. Option (b) will apply when the upgradient wells exceed the listed permit limitation(s). If the upgradient wells are not installed by the first monitoring period, or upgradient well data is not available for any other reason, option (a) will apply.

Upgradient wells #1, 18, 31, and 32 shall be monitored for comparison to downgradient wells.

Reviewer: Curt B. Gateley
Date: 8-18-06
Unit Chief: Refaat Mefrakis

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.